MFM2P

Review: Factoring – GCF Great Common Factor

a) $6x-3=$ $3(2x-1)$ b) $x^3+x^2=$ $x^2(x+1)$ c) $6x^2-4x+8=$ $2(3x^2-2x+4)$

Reminder

Perfect Squares: Squaring is when multiplying a number by itself. The number you are multiplying is called the base and the exponent 2 indicates you are multiplying the base by itself.

base^2 = base x base = perfect square ex: $3^2 = 3 \times 3 = 9$

$5^2=5\times5=25$

List the first twelve perfect squares.

1, 4, 9, 16, 25, 36, 49, 64, 81, 100, ...

1x1=**1**
2x2=**4**
3x3=**9**
4x4=**16**
5x5=**25**
6x6=**36**
7x7=**49**
8x8=**64**
9x9=**81**
10x10=**100**
11x11=**121**
12x12=**144**

The opposite of squaring a number is known as "Square root"

Remember: The opposite to Multiplying is dividing

The opposite to Adding is subtracting

The opposite to Squaring is Square rooting

Lesson 3.3: Factoring – Difference of Squares

two things

If it is a binomial, if there is subtraction, if you can find the square root of the first term and the second term then it is a difference of squares and it can be factored.

Examples

1) $16x^2-49=$

$\sqrt{16}=4$ $\sqrt{49}=7$

$=(4x+7)(4x-7)$

$=16x^2-28x+28x-49$ } check

$=16x^2-49$

Steps

1) Factor out GCF (if there is one).
2) Find the square root of each term.
3) Write the square roots as a sum and then a subtraction.

2) $x^2 - 25 =$

$\sqrt{x^2} = x$ $\quad \sqrt{25} = 5$

$= (x-5)(x+5)$

$= x^2 + 5x - 5x - 25$ } check

$= x^2 - 25$

3) $3y^2 - 27 =$ $\quad 3(y^2 - 9)$

$= 3(y+3)(y-3)$

4) $5x^2 - 45 =$

$= 5(x^2 - 9)$

$= 5(x-3)(x+3)$

5) $4m^2 - 1 =$

$= (2m+1)(2m-1)$

6) $200 - 2x^2 =$

$= 2(100 - x^2)$

$= 2(10-x)(10+x)$

7) Is this possible?

$k^2 + 49 =$

will not work with a positive sign

Hmwk: P.302 #1, 2, 3, 4 & 13